

Section 2-3: Write Variable Expressions

By the end of this lesson, you should be able to answer:

- How do you write variable expressions to represent word phrases?
- How do you write word phrases to represent variable expressions?

Where you might see this in the real world:

- Part-time job, space science, photography, population

***Any variable may be used to represent a number. The most commonly used variables in Algebra are x and y .

Below is a list of word phrases. We need to match the operation (addition, subtraction, multiplication, division) that goes with each word and rewrite as a variable expression.

**Word phrase
expression**

Variable

Four more than a number

The difference of a number and 15

Three times a number

The quotient of a number and 5

Eight less than a number

The sum of a number and -10

The product of a number and 15

Six divided by a number

A number increased by twelve

A number multiplied by four

Negative five decreased by a number

***We can also see combinations of the above phrases

Twelve less than the quotient of a number and seven

Example 1: Write each phrase as a variable expression.

a. Twice the sum of a number and three

b. Six less than the product of a number and ten

The same way that we can translate the word phrases into variable expressions, we can translate variable expressions back into words. It is very important to remember that **a variable is representing a number**, as we do not say "three times x " for $3x$.

Example 2:

a. $3(x + 10)$

b. $8n - 5$

These ideas are very important to us in helping us solve real world situations. We need to be able to translate the words into math. This can be very difficult if we try to do a whole problem at once. It is important to keep in mind that we can break these problems down into pieces, and then work from there.

Example 3: Matt Mitarnowski makes and sells candles. For his medium-sized pillar candles, he charges \$5.50 each for the unscented ones and \$7.00 each for the scented ones. Write a variable expression to show how much Matt earns when he sells his medium-sized pillar candles. Then figure out how much he has made when he sells 6 unscented and 10 scented candles.

***As we have shown in this example, for real world situations, we need to identify the variables and label your answers. I will look for this on quizzes and tests!

Problem Set:

"Our greatest glory is not in never falling but in rising every time we fall." - Confucius